

ORDER FOR SUPPLIES OR SERVICES										PAGE 1 OF 12																	
1. CONTRACT/PURCH. ORDER/ AGREEMENT NO. N68936-99-D-0031			2. DELIVERY ORDER/ CALL NO. 0007		3. DATE OF ORDER/CALL 2002May13		4. REQ./ PURCH. REQUEST NO. 539400E-2121-92XK			5. PRIORITY DO A7																	
6. ISSUED BY CDR NAWCWD CODE 230000E ATTN: N. GARZA (805) 989-1880 575 "I" AVE SUITE 1, BLDG 65 POINT MUGU CA 93042-5049				7. ADMINISTERED BY DCMA BALTIMORE 217 E. REDWOOD, SUITE 1800 BALTIMORE MD 21202-5299		8. DELIVERY FOB <input checked="" type="checkbox"/> DEST <input type="checkbox"/> OTHER (See Schedule if other)																					
9. CONTRACTOR COMPUTER TECHNOLOGY ASSOCIATES INC JEAN AMUNDSON 12530 PARKLAWN DRIVE SUITE 300 ROCKVILLE MD 20852				10. DELIVER TO FOB POINT BY (Date) SEE SCHEDULE		11. MARK IF BUSINESS IS <input type="checkbox"/> SMALL <input checked="" type="checkbox"/> SMALL DISADVANTAGED <input type="checkbox"/> WOMEN-OWNED																					
12. DISCOUNT TERMS				13. MAIL INVOICES TO THE ADDRESS IN BLOCK See Item 15																							
14. SHIP TO SEE SCHEDULE				15. PAYMENT WILL BE MADE BY DFAS - CO/JXPB SOUTH ENTITLEMENT OPERATIONS PO BOX 182264 COLUMBUS OH 43218-2264			16. MARK ALL PACKAGES AND PAPERS WITH IDENTIFICATION NUMBERS IN BLOCKS 1 AND 2.																				
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%; padding: 5px;">16. TYPE OF ORDER</td> <td style="width:10%; padding: 5px;">DELIVERY/ CALL</td> <td style="width:5%; padding: 5px;"><input checked="" type="checkbox"/></td> <td style="padding: 5px;">This delivery order/call is issued on another Govt. agency or in accordance with and subject to terms and conditions of above numbered contract.</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">PURCHASE</td> <td style="padding: 5px;"><input type="checkbox"/></td> <td style="padding: 5px;">Reference your quote dated _____</td> </tr> <tr> <td colspan="4" style="padding: 5px;">Furnish the following on terms specified herein.</td> </tr> <tr> <td colspan="4" style="padding: 5px;">ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED. SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.</td> </tr> </table>												16. TYPE OF ORDER	DELIVERY/ CALL	<input checked="" type="checkbox"/>	This delivery order/call is issued on another Govt. agency or in accordance with and subject to terms and conditions of above numbered contract.		PURCHASE	<input type="checkbox"/>	Reference your quote dated _____	Furnish the following on terms specified herein.				ACCEPTANCE. THE CONTRACTOR HEREBY ACCEPTS THE OFFER REPRESENTED BY THE NUMBERED PURCHASE ORDER AS IT MAY PREVIOUSLY HAVE BEEN OR IS NOW MODIFIED. SUBJECT TO ALL OF THE TERMS AND CONDITIONS SET FORTH, AND AGREES TO PERFORM THE SAME.			
16. TYPE OF ORDER	DELIVERY/ CALL	<input checked="" type="checkbox"/>	This delivery order/call is issued on another Govt. agency or in accordance with and subject to terms and conditions of above numbered contract.																								
	PURCHASE	<input type="checkbox"/>	Reference your quote dated _____																								
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NAME OF CONTRACTOR				SIGNATURE				TYPED NAME AND TITLE				DATE SIGNED (YYYYMMDD)															
<input type="checkbox"/> If this box is marked, supplier must sign Acceptance and return the following number of copies:																											
17. ACCOUNTING AND APPROPRIATION DATA/ LOCAL USE See Schedule																											
18. ITEM NO.		19. SCHEDULE OF SUPPLIES/ SERVICES				20. QUANTITY ORDERED/ ACCEPTED*		21. UNIT	22. UNIT PRICE		23. AMOUNT																
		SEE SCHEDULE																									
* If quantity accepted by the Government is same as quantity ordered, indicate by X. If different, enter actual quantity accepted below quantity ordered and encircle						24. UNITED STATES OF AMERICA <i>Nathan J Simpson</i> BY: NATHAN J SIMPSON CONTRACTING / ORDERING OFFICER			25. TOTAL \$191,065 00																		
26. QUANTITY IN COLUMN 20 HAS BEEN <input type="checkbox"/> INSPECTED <input type="checkbox"/> RECEIVED <input type="checkbox"/> ACCEPTED, AND CONFORMS TO THE CONTRACT EXCEPT AS NOTED						27. SHIP NO. <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		28. DO VOUCHER NO.		29. DIFFERENCES																	
DATE _____ SIGNATURE OF AUTHORIZED GOVT. REP. _____						31. PAYMENT <input type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL		32. PAID BY		30. INITIALS																	
36. I certify this account is correct and proper for payment.								33. AMOUNT VERIFIED CORRECT FOR																			
DATE _____ SIGNATURE AND TITLE OF CERTIFYING OFFICER _____								34. CHECK NUMBER																			
37. RECEIVED AT						38. RECEIVED BY		39. DATE RECEIVED (YYYYMMDD)		40. TOTAL CONTAINERS																	
								41. S/R ACCOUNT NO.		42. S/R VOUCHER NO.																	

I. SUPPLIES/SERVICES:

<u>CLIN</u>	<u>DESCRIPTION</u>	<u>AMOUNT</u>
0001	Have Ham Modulator Subsystem (SOW 3.1)	
0001AA	Four Each (SOW 3.1.1)	
	MAX ESTIMATED COST	\$ _____
	BASE FEE	\$ _____
	MAX AWARD FEE	\$ _____
	TOTAL COST + AWARD FEE	\$ _____
	MATERIAL ESTIMATED COST	\$ _____
	MATERIAL FEE	\$ _____
	CLIN TOTAL	\$ _____
0001AB	Four Each (SOW 3.1.2)	
	MAX ESTIMATED COST	\$ _____
	BASE FEE	\$ _____
	MAX AWARD FEE	\$ _____
	TOTAL COST + AWARD FEE	\$ _____
	MATERIAL ESTIMATED COST	\$ _____
	MATERIAL FEE	\$ _____
	CLIN TOTAL	\$ _____
0001AC	Four Each (SOW 3.1.3)	
	MAX ESTIMATED COST	\$ _____
	BASE FEE	\$ _____
	MAX AWARD FEE	\$ _____
	TOTAL COST + AWARD FEE	\$ _____
	MATERIAL ESTIMATED COST	\$ _____
	MATERIAL FEE	\$ _____
	CLIN TOTAL	\$ _____

0002 HH WCO Circuit Card Assemblies (SOW 3.2)

0002AA Four Each (3.2.1)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0002AB Four Each (SOW 3.2.2)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0002AC Four Each (SOW 3.2.3)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0003 Technique Controller Modulator (TCM or Hydra) (SOW 3.3)

0003AA Ten Each (3.3.1)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0003AB Five Each (SOW 3.3.2)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0004 Technique Controller Modulator Noise Cards (SOW 3.4)

0004AA Thirty-Nine (39) Each (3.4.1)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0004AB Five Each (SOW 3.4.2)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0005 Technique Controller Modulator RFI Cards (SOW 3.5)

0005AA Five Each (3.5.1)

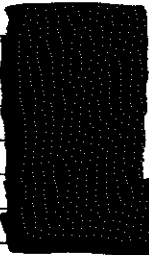
MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0006 Technique Controller Modulator Dual Serro Cards (SOW 3.6)


MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

**0007** Technique Controller Modulator RGS AM Cards (SOW 3.7)


MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

**0008** Radar Transmitting Set (UPT-2X) (SOW 3.8)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____



0009 Radar Transmitting Set (UPT-2A) (SOW 3.9)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0010 Radar Transmitting Set (DPT-1B) (SOW 3.10)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0011 AN/DPT – 1 J-Band Magnetron (SOW 3.11)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0012 AN/DPT-1 High J-Band Magnetron (SOW 3.12)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0013 AN/DPT – 2B Tunable J-Band Magnetron (SOW 3.13)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0014 Radar Transmitting Set (DPT-2C) (SOW 3.14)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0015 AN/DPT – 2C Magnetron (SOW 3.15)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0016 Telemetry Sets (SOW 3.16)**0016AA** Four Each (3.16.1)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0016AB Ten Each (3.16.2)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0016AC Ten Each (3.16.3)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0017 Waveform Controller Oscillator (SOW 3.17)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

0018 AN/DPT – 2B Tunable H-Band Magnetrons (SOW 3.18)

MAX ESTIMATED COST
BASE FEE
MAX AWARD FEE
TOTAL COST + AWARD FEE
MATERIAL ESTIMATED COST
MATERIAL FEE
CLIN TOTAL

\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____
\$ _____

Grand Total CLINS 0001 – 0018**\$ 4,197,622.00****II. FUNDING PLAN**

In accordance with the clause entitled "Limitation of Cost (APR 1984)" FAR 52.232-20, the amount presently available for payment by the Government and allotted to this Task Order is \$1,060,957.00. This amount covers the entirety of CLINs 0001AA, 0002AA, 0003AA, 0004AA, 0012 and 0013. CLINS 0001AB, 0001AC, 0002AB, 0002AC, 0003AB, 0004AB, 0005 – 0011, and 0014 - 0018 remain unfunded. The contractor shall not commence performance under CLINS 0001AB, 0001AC, 0002AB, 0002AC, 0003AB, 0004AB, 0005 – 0011, and 0014 - 0018 until funding is provided.

III. SCOPE:

The scope of this Task Order is contained within the Statement of Work (SOW), Attachment (1).

IV. PLACE OF DELIVERY/FOB DESTINATION:

The articles to be furnished shall be delivered and all transportation charges paid by the supplier to the Naval Air Warfare Center, Weapons Division, Point Mugu, CA. Deliveries will be accepted Monday through Thursday from 8:00 AM to 4:30 PM. No deliveries will be received on Fridays.

V. INSPECTION AND ACCEPTANCE:

Inspection and acceptance will be performed at destination by the Contracting Officer's Representative (COR).

VI. SHIP TO/MARK FOR:

Each shipment will be clearly marked to show the following information:

SHIP TO:
Receiving Officer
NAWCWD
Point Mugu, CA 93042

MARK FOR:
Contract N68936-99-D-0031
Delivery Order 000
ATTN: Tom Williams, Code 539400E

VII. PERIOD OF PERFORMANCE:

The period of performance for this Task Order is stated in the SOW, Attachment (1).

VIII. TRAVEL:

Approval for any travel other than that indicated in the SOW shall be obtained in writing from the COR in advance. Costs associated with any travel not so approved by the Contracting Officer will be disallowed.

IX. ACCOUNTING AND APPROPRIATION DATA:

FUNDING IS PROVIDED FOR CLINS 0001AA, 0002AA, 0003AA, 0004AA, 0012 and 0013 ONLY.

FUNDING FOR CLINS 0001AA, 0002AA, 0003AA, 0004AA, 0012 and 0013:

AA 1721507 J2EM 311 B2208 068342 2D N63126 EM300000150P \$1,060,957.00
REQ# 539400E - 2121 - 92XK JON: C534J2BBCECM
DOC# N0001902RXB202W

X. CONTRACTING OFFICER'S REPRESENTATIVE (COR):

The COR is responsible for monitoring the performance and progress as well as overall technical management of this order and should be contacted regarding questions or problems of a technical nature. When, if in the opinion of the contractor, the COR requests effort outside the scope of this order, the contractor will promptly notify the Ordering Officer in writing. In no event however, will any understanding or agreement, modification, change order, or other matter deviating from the terms of the order between the contractor and any other person other than the Ordering Officer be effective or binding upon the Government.

Only when formalized by proper contractual documents executed by the Ordering Officer within the scope, or if a change order has been issued, shall any modifications or changes to the original contract occur.

On all problems that pertain to contract or order terms, the Contractor will contact the Ordering Officer.

The Ordering Officer is:

Nathan Simpson Code 230000E 805/989-1303

The COR is:

Tom Williams Code 539400E 805/989-3538

The Technical Assistant is:

Rosie Vorwerk Code 535000D 760/939-0260

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THREAT SIMULATORS SUBSYSTEM SUPPORT STATEMENT OF WORK

1.0 SCOPE. The Contractor shall design, develop, prototype, fabricate and test the subsystems listed below for the AN/ULQ-21 (V), AN/ALQ-167 ECM Simulators and various Threat Radar Simulators. Each subsystem provided by the Contractor shall be based on the Government's applicable specification and/or current drawing package.

2.0 APPLICABLE DOCUMENTS

2.1 Military Standards

MIL-DTL-31000	Technical Data Packages
MIL-STD-100	Engineering Drawings
MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-704	Aircraft Electric Power Characteristics
MIL-STD-810	Environmental Test Methods - Engineering Guidelines (Guidance Only)

2.2 Other Government and Industrial Documents

1611AS9650	Have Ham Modulator Technical Data Package (TDP)
1611AS11862	Have Ham Modulator CPU CCA Technical Data Package
1611AS11863	Have Ham Modulator RGS CCA Technical Data Package
1611AS11869	Have Ham Modulator Serro CCA Technical Data Package
1611AS11874	Have Ham Modulator ICU CCA Technical Data Package
1611AS11878	Have Ham CPU CCA Technical Data Package
1611AS11882	Have Ham AM CCA Technical Data Package
1611AS11886	Have Ham ICU CCA Technical Data Package
1611AS11895	Have Ham Analog Receiver CCA Technical Data Package
1611AS11891	Have Ham Digital Receiver CCA Technical Data Package
1611AS12320	Technique Controller Modulator (TCM) Chassis TDP
1611AS12366	CPUIF Circuit Card Assembly
1611AS12382	Dual Serro Circuit Card Assembly
1611AS12370	RGS AM Circuit Card Assembly
1611AS12378	Noise Circuit Card Assembly
1236AS2100	Radar Transmitting Set (UPT-2A)
1236AS2230	Radar Transmitting Set (UPT-2X)
1236AS2485	Radar Transmitting Set (DPT-1B)
VMU1134	DPT-1 J-Band Magnetron
VMU1039	DPT-1 High J-Band Magnetron
1236AS3235	DPT-2B Tunable J-Band Magnetron
1236AS2501	Radar Transmitting Set (DPT-2C)
VMU1934	DPT-2C Magnetron
1611AS727	Waveform Controller Oscillator
1611AS8750	Telemetry Set
1236AS3240	DPT-2B H-Band Tunable Magnetron
ISO 9000	International Standards Organization Quality Standard

2.3 Specifications/ Technical Requirements Documents

ATS-TRD-103	Technique Controller Modulator (TCM)
ATS-TRD-104	TCM Central Processor Unit (CPU CCA)
ATS-TRD-105	TCM Modulator Central Processor Unit Interface (CPU I/F CCA)
ATS-TRD-106	TCM RF Circuit Card Assembly (RF CCA)#1
ATS-TRD-107	TCM Noise Circuit Card Assembly (NZE CCA)
ATS-TRD-108	TCM Dual Serro Circuit Card Assembly (Dual Serro CCA)
ATS-TRD-109	TCM Range Gate Stealer AM Circuit Card Assembly (RGSAM CCA)
ATS-SP635	Radar Transmitting Set (UPT-2A)
ATS-SP-663	Radar Transmitting Set (UPT-2X)

13672-EW727B Oscillator, Waveform Controller
 13672-TS640B Radar Transmitting Set (AN/DPT-2C)

3.0 REQUIREMENTS. The Contractor shall fabricate and deliver hardware and updated documentation for the following ECM simulator subsystems: HAVE HAM Modulator and Circuit Card Assemblies, Have Ham Modulator Circuit Card Assemblies, Technique Controller Modulator (TCM), Technique Controller Modulator Circuit Card Assemblies, Radar Transmitting Sets (UPT-2X and UPT-2A) and Magnetrons, Telemetry Sets and Waveform Controller Oscillators. Tasking shall include existing subsystem variant design; subsystems fabrication; documentation updates reflecting current designs/fabricated subsystems; and verification and validation of existing design documentation. This effort shall be performed under the premises of ISO-9000.

3.1 Have Ham Modulator. The Contractor shall provide Have Ham Modulators with the associated Circuit Card Assemblies in the quantities listed below. The modulator shall meet the specification and drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve modulator capability / upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed. The CCAs shall consist of one Have Ham Modulator CPU, one Have Ham Modulator RGS, two each Have Ham Modulator Serro, and one Have Ham Modulator ICU CCAs. The Have Ham Modulator CCAs shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government

The Contractor shall design, conduct and provide test data for all individual RF components, cables and wiring harnesses within each unit. This shall include capturing the performance characteristic of each part within the system (i.e. Amplifier power, saturation level, loss.). The contractor shall provide a summary of all test results with each modulator delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

- 3.1.1 Four (4) each Have Ham Modulators
- 3.1.2 Four (4) each Have Ham Modulators
- 3.1.3 Four (4) each Have Ham Modulators

3.2 Have Ham WCO Circuit Card Assemblies. The Contractor shall provide the quantities of Have Ham Circuit Card Assemblies (CCAs) listed below. These sets shall consist of one Have Ham CPU CCA, one Have Ham AM CCA, One Have Ham ICU CCA, one Analog Receiver CCA and One Digital Receiver CCA. The circuit card assemblies shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve modulator capability / upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

- 3.2.1 Four (4) each Have Ham WCO CCAs
- 3.2.2 Four (4) each Have Ham WCO CCAs
- 3.2.3 Four (4) each Have Ham WCO CCAs

3.3 Technique Controller Modulator (TCM or Hydra)). The Contractor shall provide Technique Controller Modulators in the quantities listed below. The Technique Controller Modulator shall include the CPU and CPU IF Circuit Card Assemblies and shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve Technique Controller Modulator capability / upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall design, conduct and provide test data for all individual RF components, cables and wiring harnesses within each unit. This shall include capturing the performance characteristic of each part within the system. The contractor shall provide a summary of all test results with each modulator delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.3.1 Ten (10) Technique Controller Modulator Chassis

3.3.2 Five (5) Technique Controller Modulator Chassis

3.4 Technique Controller Modulator Noise Cards. The Contractor shall deliver Technique Controller Modulator Noise cards in the quantities listed below. The cards shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve card capability/ upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

3.4.1 Thirty-nine (39) Technique Controller Modulator Noise Cards

3.4.2 Five (5) Technique Controller Modulator Noise Cards

3.5 Technique Controller Modulator RF1 Cards. The Contractor shall provide Technique Controller Modulator RF1 Modules, in the quantities listed below. The modules shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve card capability/ upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each card delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.5.1 Five (5) each RF1 Modules

3.6 Technique Controller Modulator Dual Serro Cards. The Contractor shall provide Technique Controller Modulator Dual Serro cards in the quantities listed below. The cards shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve card capability/upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

3.6.1 Five (5) Technique Controller Modulator Dual Serro Cards

3.7 Technique Controller Modulator RGS AM Cards. The Contractor shall deliver Technique Controller Modulator RGS AM cards in the quantities listed below. The cards shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve card capability/upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

3.7.1 Five (5) Technique Controller Modulator RGS AM Cards

3.8 Radar Transmitting Set (UPT-2X). The Contractor shall provide Radar Transmitting Sets (UPT-2X) in the quantities listed below. The Radar Transmitting Set shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve Radar Transmitting Set capability/upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each Radar Transmitting Set delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.8.1 Five (5) AN/UPT-2X Radar Transmitting Sets

3.9 Radar Transmitting Set (UPT-2A). The Contractor shall provide Radar Transmitting Sets (UPT-2A) in the quantities listed below. The Radar Transmitting Set shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve Radar Transmitting Set capability/upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each Radar Transmitting Set delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.9.1 Five (5) AN/UPT-2A Radar Transmitting Sets

3.10 Radar Transmitting Set (DPT-1B). The Contractor shall provide Radar Transmitting Sets (DPT-1B) in the quantities listed below. The Radar Transmitting Set shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve Radar Transmitting Set capability/upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each Radar Transmitting Set delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.10.1 Twenty-five (25) AN/DPT-1B Radar Transmitting Sets

3.11 AN/DPT-1 J-Band Magnetron. The Contractor shall provide AN/DPT-1B J-Band Magnetrons in the quantities listed below. The Magnetrons shall meet the drawing package and specification requirements referenced in paragraph 2. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce the Magnetron cost. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each Magnetron delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.11.1 Fifty (50) AN/DPT-1B J-Band Magnetrons

3.12 AN/DPT-1 High-J-Band Magnetron. The Contractor shall provide AN/DPT-1B High J-Band Magnetrons in the quantities listed below. The Magnetrons shall meet the drawing package and specification requirements referenced in paragraph 2. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce the Magnetron cost. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each Magnetron delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.12.1 Five (5) AN/DPT-1 High J-Band Magnetrons

3.13 AN/DPT-2B Tunable J-Band Magnetron. The Contractor shall provide AN/DPT-2B Tunable J-Band Magnetrons in the quantities listed below. The Magnetrons shall meet the drawing package and specification requirements referenced in paragraph 2. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce the Magnetron cost. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each Magnetron delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.13.1 Fifteen (15) AN/DPT-2B Tunable J-Band Magnetrons

3.14 Radar Transmitting Set (DPT-2C). The Contractor shall provide Radar Transmitting Sets (DPT-2C) in the quantities listed below. The Radar Transmitting Set shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve Radar Transmitting Set capability/upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each Radar Transmitting Set delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.14.1 Six (6) AN/DPT-2C Radar Transmitting Sets

3.15 AN/DPT-2C Magnetron. The Contractor shall provide AN/DPT-2C High Magnetrons in the quantities listed below. The Magnetrons shall meet the drawing package and specification requirements referenced in paragraph 2. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce the Magnetron cost. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each Magnetron delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.15.1 Ten (10) AN/DPT-2C Magnetrons

3.16 Telemetry Sets. The Contractor shall provide Telemetry (TM) Sets in the quantities listed below. The TM Sets shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve TM Pack capability/upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each TM Sets delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

- 3.16.1 Four (4) Telemetry Sets
- 3.16.2 Ten (10) Telemetry Sets
- 3.16.3 Ten (10) Telemetry Sets

3.17 Waveform Controller Oscillator. The Contractor shall provide Waveform Controller Modulators (WCOs) in the quantities listed below. The WCOs shall meet the drawing package requirements referenced in paragraph 2 and shall incorporate any new design specifications and/or requirements provided by the Government. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce cost and improve WCO capability/upgradeability. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each WCO delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.17.1 Ten (10) Waveform Controller Oscillators

3.18 AN/DPT-2B Tunable H-Band Magnetron. The Contractor shall provide AN/DPT-2B Tunable H-Band Magnetrons in the quantities listed below. The Magnetrons shall meet the drawing package and specification requirements referenced in paragraph 2. The Contractor shall analyze and research the use of alternate vendors, availability of parts, and manufacturing processes to reduce the Magnetron cost. The Contractor shall document any proposed design changes and obtain approval from the Government prior to upgrade fabrication in accordance with CDRL A001. Upon Government approval the Contractor shall update all design documentation to reflect the as-built configuration. All documentation shall conform to the current drawing package's use of nomenclature and format unless otherwise directed.

The Contractor shall provide acceptance test data in accordance with the requirements referenced in SOW paragraph 2. The contractor shall provide a summary of all test results with each Magnetron delivered in accordance with CDRL A002. The Contractor shall provide engineering and test support at the Government's Pt. Mugu facility for final checkout and systems integration.

3.18.1 Ten (10) AN/DPT-2B Tunable J-Band Magnetrons

3.18.2

SCHEDULE. Work shall commence upon award of this task order based on CLIN releases. Completion of work is scheduled for not more than 27 months after contract award. The Contractor shall provide a proposed schedule for each CLIN prior to start of work.

The period of performance will be as follows:

Have Ham Modulator	(3.1)	12 months after exercised
Have Ham WCO Circuit Card Assemblies	(3.2)	12 months after exercised
Technique Controller Modulator, CPU & CPUIF	(3.3)	12 months after exercised
TCM Noise Cards	(3.4)	12 months after exercised
TCM RF1 Cards	(3.5)	12 months after exercised
TCM Dual Serro Cards	(3.6)	12 months after exercised
TCM RGS AM Cards	(3.7)	12 months after exercised
Radar Transmitting Set (UPT-2X)	(3.8)	12 months after exercised
Radar Transmitting Set (UPT-2A)	(3.9)	12 months after exercised
Radar transmitting Set (DPT-1B)	(3.10)	12 months after exercised
AN/DPT-1B J-Band Magnetrons	(3.11)	12 months after exercised
AN/DPT-1 High J-Band Magnetrons	(3.12)	12 months after exercised
AN/DPT-2B Tunable J-Band Magnetrons	(3.13)	12 months after exercised
Radar Transmitting Set (AN/DPT-2C)	(3.14)	12 months after exercised
AN/DPT-2C Magnetrons	(3.15)	12 months after exercised
Telemetry Sets	(3.16)	12 months after exercised
Waveform Controller Oscillator	(3.17)	12 months after exercised
AN/DPT-2B Tunable H-Band Magnetron	(3.18)	12 months after exercised

SPECIAL CONSIDERATIONS

Technical Coordinator

The Technical Coordinator for this task order is:

Tom Williams

Code 539400E

NAWCWPNS, Pt Mugu

Telephone (805) 989-583-3538

Alternate Technical Coordinator:

Ben Rasnick

Code 539400E

NAWCWPNS, Pt Mugu

Telephone (805) 989-3538

Drawings. The drawings listed in this SOW will be provided as Government Furnished Data (GFD) to the Contractor for the subsystems referenced in this SOW. The Contractor shall identify any additional required data during the course of work. The Contractor shall identify documentation that is maintained at the Contractor's facility.

Individual Test Equipment. To reduce overall program costs the following specialized test equipment will be loaned on an as-required basis as GFE to the Contractor to support Contractor subsystem-level fabrication and testing efforts:

8328A Transmission Line Test Set
Manufacturer: Hewlett Packard
Quantity: 1

494P Programmable Spectrum Analyzer
Manufacturer: Tektronics
Quantity: 1

8672A Synthesized Signal Generator
Manufacturer: Hewlett Packard
Quantity: 1

436A Power Meter
Manufacturer: Hewlett Packard
Quantity: 1

5.2.4 Government Furnished Material. In order to reduce delivery time the Contractor may request the loan of long lead items in Government stock with subsequent replenishment. The material may be provided at the Government's option if existing or projected stock levels will not negatively impact the Government.

Security Classification. UNCLASSIFIED

Travel. Non-local travel may be required in the performance of this delivery order to participate in technical interchange meetings and to research/gather technical information at Point Mugu. Attendance at Technical Interchange and Research Meetings on site at Pt. Mugu, CA is required within 72 hours of initial government request. Travel estimates shall be based upon a maximum of 18 trips for three (3) people to Pt. Mugu, CA. Trips other than between the contractor's local facility and NAWCWD installations not exceeding 300 miles shall require prior approval by the Technical coordinator.

Reports. In support of this task order, the Contractor will deliver a monthly status report that includes a summary of work performed, problems encountered, problems resolved, current schedules and information, including period and cumulative funds/hours expended and payments billed and received, in accordance with CDRL A003. This report will be provided to the Technical Coordinator no later than 10 working days following the end of the Contractor's monthly accounting period.